

UTILITY PATENT APPLICATION  
Attorney's Docket No.: 3089

**Certification of Express Mailing (37 C.F.R. Section 1.10)**

I hereby certify that this Utility Patent Application is being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" Number EL715208862US on the date below in an envelope with sufficient postage addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Printed or Typed Name: Barbara S. Pedersen

Signature: Barbara S. Pedersen

Date of Deposit: 11/8/01

TOP SECRET - ECDDBOT

Title of Invention: Training Apparatus

Inventor: Peter Morrison  
34 Marshall Grove  
Great Barr  
Birmingham B44 8HR  
ENGLAND

#### TRAINING APPARATUS

This invention relates to a training apparatus, and in particular to an apparatus usable as a training aid for  
5 sports such as football, basketball, hockey etc.

The invention proposes a free standing training apparatus having a number of targets at which a trainee can aim a ball, each target preferably being mounted on a movable  
10 frame around a training area within which the trainee can stand or move. The targets may be arranged substantially in a circle, for example the frames may be arranged on a circular ring. The ring and the frames can be adapted for outdoor use, e.g. with spikes for location into the ground,  
15 or for indoor use, e.g. with rubber feet or other friction grips.

The training apparatus is likely to find its greatest utility in relation to team sports (such as football,  
20 basketball, or hockey, for example) in which a ball may be passed to a team mate in any direction, the training apparatus simulating a player surrounded by teammates to whom he could pass the ball (and perhaps also some opponents to whom he should not pass the ball).

25 The advantages of the apparatus is that it can help a trainee to train by himself (or herself) to improve his touch, balance, passing, turning, vision, pace, concentration and stamina.

30 The object of the invention is to provide an apparatus which can improve a person's skills, fitness and other attributes as set out above. Also, the apparatus can have benefits when used to rehabilitate a person returning to a sport  
35 after a lay-off caused by injury for example.

Preferably, the targets are mounted to be substantially rigid, so that the ball will bounce off the target back to

the trainee. In this way the trainee can undertake successive passes to different targets in quick succession.

Advantageous features of preferred embodiments of the  
5 invention are:

1. The ability to move each target relative to the other targets and relative to the training area, i.e. backwards or forwards, to increase or decrease the  
10 distance between the trainee and the target.
  2. Identification markings (e.g. numbers, letters, names) can be placed on the targets. A verbal or visual message can instruct the trainee which target to aim  
15 at. The speed at which the trainee can pass to successive targets will depend on the speed and accuracy of the trainee.
  3. A net can be placed between each target to enclose the training area and prevent the ball from leaving the training area if the ball misses a target.  
20
  4. The targets can be sized and/or shaped according to requirements. For example, if the training apparatus is used for football training the targets can be shaped as mannequins. The targets (mannequins) can be available in a number of sizes closely to match the size of the trainee and better simulate the trainee being surrounded by teammates (and opponents).  
25
- 30 Preferred materials for the apparatus are: aluminium tubing for the main structure (e.g. the frames and the ring), plastic or wood for the targets, and a suitable material (e.g. nylon) for the net or nets between the targets.
- 35 Preferred embodiments of the invention will now be described with reference to the accompanying drawings, in which:

Fig. 1 shows the training apparatus of the invention assembled;

Fig. 2 shows a target in the form of a mannequin;

Fig. 3 shows a frame on which a target is mounted, in side view;

Fig. 4 shows the base ring on which the frames may be mounted; and

Fig. 5 is an enlarged view of the ends of adjacent sections of the base ring.

Fig. 1 shows the invention in its assembled or operational condition. In this embodiment the apparatus 10 comprises eight targets 12 (in the form of mannequins), with a retaining means in the form of a net 14 between the mannequins to prevent the ball (not shown) leaving the training area 16.

Each mannequin 12 is mounted upon a frame 20, the mannequin and frame being sufficiently rigid so that a ball struck against the mannequin by a trainee (not shown) within the training area 16 will rebound towards the trainee. The mannequins are preferably substantially flat to make the rebounds more predictable, though as shown in Fig. 1 at least some of the mannequins can have three-dimensional form.

The frames 20 are mounted upon a substantially circular base ring 22, so that the mannequins lie in a substantial circle around the training area 16. Alternatively of course the base can be polygonal; in embodiments having eight targets the base can for example be octagonal if desired.

In this embodiment the frames are movable relative to the base, allowing each of the mannequins to be moved inwards or outwards relative to the centre of the training area 16 (the

mannequin 12a is shown moved inwards relative to the other mannequins).

Also in this embodiment the movement available to the  
5 mannequins comprises three discrete locations determined by  
the three cross-rails 24 which can be located upon the base  
ring 22. Thus, the trainee (or the trainer) can decide  
which of the three available positions should be utilised  
10 for each of the mannequins 12, and these positions can be  
adjusted before or even during a training session.

As shown in Fig. 2, each mannequin 12 is in the form of a silhouette of a player, and has fixing means (not shown) by which it may be substantially rigidly secured to the frame  
15 20. The fixing means may be releasable to facilitate disassembly of the apparatus, as may be required for the apparatus to be readily transportable and more easily storable.  
20 It is intended for football training that the trainee will be requested to pass the ball along the ground, and the mannequin's "feet" are joined together at 28. Accordingly, the trainee has a relatively large area at ground level against which the ball can be struck. The rebound is  
25 therefore more likely to be predictable if the ball is struck along the ground. Conversely, the mannequins "legs" 30 are separated, and the target area for a predictable rebound is much smaller, requiring greater accuracy on the part of the trainee (or alternatively stated the rebound  
30 from the mannequin's "legs" 30 is more difficult to predict). This replicates the situation in a game of football in which a pass to a teammates feet is readily controllable and to be encouraged, whereas a pass to his knees or other part of his legs is less controllable and is  
35 to be discouraged.

Fig.3 shows a side view of the frame 20, which includes a generally vertical (in use) member 32, a generally

horizontal (in use) member 34, and a curved support member 36. The members 32, 34 and 36 are preferably metallic, ideally a lightweight metal such as aluminium, and are substantially rigidly joined together, for example by  
5 welding.

The generally vertical member 32 carries three support plates 40 which each provide a flat surface to which a mannequin 12 can be affixed. Alternatively, the mannequin  
10 12 can be affixed directly to the member 32. The mannequin is preferably releasably affixed to the member 32, for example by threaded connectors, so that the apparatus can be disassembled for transportation and storage.

15 The generally horizontal member 34 carries three cross-rails 24 which are shaped to receive and locate upon a part of the base ring 22 (Fig.1). In this embodiment the base is of circular cross-section and so the cross-rails 24 are part-circular in cross-section. The frame 20 can be located upon  
20 the base ring 22, with the chosen cross-rail 24 engaging the base ring 22, to provide three possible locations for the frame 20.

The generally horizontal member 34 also carries a back-rail  
25 44 which lies substantially perpendicular to the member 34. The back-rail 44 can carry a number of spikes or alternatively rubber (or the like) feet (depending upon whether the apparatus is being used outdoors or indoors), to limit movement of the frame, and thus of the mannequin, when  
30 this is struck by a ball. In Fig.3 a representation of the location of a rubber foot 46 upon the back-rail 44 is shown in dotted outline.

Fig.3 also shows in dotted outline another rubber foot 48  
35 located adjacent the junction between the members 32 and 34. In other embodiments a front-rail (similar to the back-rail 44) may be secured adjacent the junction between the members 32 and 34, the front-rail carrying one or more spikes or

rubber feet, so as to increase the resistance to movement of the frame, as desired or required.

Fig. 4 shows the base ring 22, which in this embodiment is  
5 assembled from four sections. Two of the four sections have "male" projections 50 at each end, and the other two sections have "female" sleeve connectors 52, into which the projections 50 can fit (see Fig.5). Openings 54 and 56 in the respective parts can be aligned to allow a fixing bolt  
10 or pin to secure the sections together.

Alternatively, each section of the base ring can have a male projection at one end and a female sleeve connector at the other end.

15 The arrangement of the base ring is designed to allow easy assembly, and subsequent disassembly for storage and transportation. Clearly, more or fewer sections can be used to make up the base ring 22, as desired.

20 When used as a training aid, each of the mannequins can be differently numbered, or carry other identifying indicia such as letters or names, and the trainee can be instructed either verbally or visually to pass the ball to particular  
25 mannequins in sequence.

Although this invention has been described above with reference to particular means, materials and embodiments, it is to be understood that the invention is not limited to the disclosed particulars, but extends instead to all equivalents within the scope of the following claims.